

FCC RF Exposure Report

FCC ID : MXF-WLTFSM13641
Equipment : LTE Cat 6 Single-Mode Indoor CPE
Model No. : WLTFSM-136ACN_384041
Brand Name : Gemtek
Applicant : Gemtek Technology Co., Ltd.
Address : No.15-1 Zhonghua Road, Hsinchu Industrial
Park, Hukou, Hsinchu, Taiwan, 30352
Standard : 47 CFR FCC Part 2.1091
Received Date : Dec. 09, 2016
Tested Date : Dec. 09, 2016 ~ Apr. 06, 2017

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:



Along Chen / Assistant Manager

Approved by:



Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FA6D1001	Rev. 01	Initial issue	May 10, 2017

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

H/W Version	Mother board: WLTFSM-136ACN_MB_V00 ; Daughter board (LTE RF module): WLTSS-119_RF_module_V00
S/W Version	01.01.02.115
WLAN	
Operating Frequency	802.11b/g/n: 2412 MHz ~ 2472 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz, 5745 MHz ~5825 MHz
Modulation Type	802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n/ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
LTE	
Operating Frequency	Channel Bandwidth: 5MHz: 2498.5 MHz ~ 2687.5 MHz Channel Bandwidth: 10MHz: 2501.0 MHz ~ 2685.0 MHz Channel Bandwidth: 15MHz: 2503.5 MHz ~ 2682.5 MHz Channel Bandwidth: 20MHz: 2506.0 MHz ~ 2680.0 MHz
Modulation Type	QPSK, 16QAM (Uplink)
Duplex Mode	TDD
Category	Cat. 5 / Cat. 6
Release Version	9

1.1.2 Antenna Details

Wi-Fi antenna

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)		
				2400~2483.5	5150~5250	5725~5850
1	WLTFSM-136ACN	Dipole	UFL	4.11	3.94	4.34
2	WLTFSM-136ACN	Dipole	UFL	1.29	2.95	3.97

LTE antenna

Ant. No.	Type	Connector	Gain (dBi)	Remark
1	Internal Dipole	UFL	3.69	---

1.1.3 Support Units

No.	Equipment	Description
1	External Dipole Antenna	Antenna Gain (dBi): 2.5

2 MPE EVALUATION OF MOBILE DEVICES

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

2.1 LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

Frequency Range (MHz)	Power Density (mW /cm ²)	Averaging Time (minutes)
300~1500	F/1500	30
1500~100000	1.0	30

2.2 MPE EVALUATION FORMULA

$$Pd = \frac{Pt}{4 * \pi * R^2}$$

Where

Pd= Power density in mW/cm²

Pt= EIRP in mW

π= 3.1416

R= Measurement distance

2.3 MPE EVALUATION RESULTS

Frequency range (MHz)	Maximum Conducted Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412~2462 (Wi-Fi)	23.02	4.11	20	0.103	1
5150~5250 (Wi-Fi)	18.68	3.94	20	0.036	1
5725~5850 (Wi-Fi)	19.72	4.34	20	0.051	1
2498.5~2687.5 (LTE B41)	23.88	3.69	20	0.114	1

MPE Evaluation of Simultaneous Transmission

The device supports simultaneous transmission as below configurations
Wi-Fi 2.4GHz, Wi-Fi 5GHz and LTE

MPE evaluation is as below formula

$PD1 / \text{Limit}1 + PD2 / \text{Limit} 2 + \dots < 1$, PD = Power density

MPE Evaluation = $0.103 / 1 + 0.051 / 1 + 0.114 / 1 = 0.268 < 1$

Conclusion

MPE evaluations of single and simultaneous transmission meet the requirement of standard.

3 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

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If you have any suggestion, please feel free to contact us as below information

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